

## ABSTRACT

An antenna array and signal preprocessing apparatus and method. The antenna array is a quadrature polarized array having two orthogonal electric dipoles and two orthogonal magnetic dipoles. The preprocessor is for preprocessing signals from the antenna, for obtaining spatial spectrum information for signal source location. The preprocessor comprises an autocorrelator, connected after said input, for forming signal autocorrelation matrices for each element, and an smoother, connected after said autocorrelator, for averaging said autocorrelation matrices, thereby to form a sample covariance matrix suitable for use in a Eigenstructure based estimator for estimating source localization.